

REMARKS

In the Office Action of July 2, 2003, claim 16 was objected to as being dependent upon itself. This has been corrected by amending claim 16 so that it now depends from claim 15.

Claims 9-11, 15, 16, 20, 29, 31 and 32 were objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Of these, claims 9, 15, 20, 29 and 31 have been rewritten in independent form to include all of the limitations of their respective base and any intervening claims. Accordingly, these rewritten claims and their respective dependent claims 10, 11, 16 and 32 are in condition for allowance. Such action is respectfully requested.

Claims 1-8, 12-14, 17-19, 21-28, 30 and 33-35 were rejected under § 102 or § 103 as unpatentable in view of the prior art. The prior art relied upon by the Examiner has been carefully considered and various amendments have been made to the above claims to more clearly define the present invention and to distinguish those claims from the cited art.

Claims 4, 26-28, 30 and 35 have been cancelled. New claims 36 and 37 have been added.

The primary reference relied upon by the Examiner in the above rejections is the Nagai et al. Patent No. 5,747,896. Although *Nagai* discloses an electric actuator, it is an actuator significantly different from that disclosed and being claimed in the present invention. In the electric actuator of *Nagai*, a ball screw 16 is supported at opposite ends. Specifically, one end is connected with and supported by the power unit 18, while the other end is connected with and supported by the encoder device 20. The slide mechanism 30 and holder block 56 includes the bearing block 60 which includes threads mating with the ball screw 16. Thus, as the screw 16 is rotated by the motor, the slide 30 and the blocks 56 and 60 move axially along the screw 16 between the power unit 18 and the encoder device 20.

Independent claim 1 has been amended to more clearly define the present invention and to clearly distinguish from *Nagai* both individually as well as in combination with other references. Specifically, in addition to defining the elongated housing, the rotation shaft and the thrust member as having both a proximal end and a distal end, the thrust member has been further defined as extending through the distal end block and with the distal end of the thrust member extending and being axially moveable "beyond said distal end block". This is clearly

distinguishable from the electric actuator of *Nagai* in which the thrust member in the form of the holder block 56 does not move or extend beyond any distal end block. Instead, the block 56 is essentially captured between the two ends of the housing and its travel is limited to that area.

Further, claim 1 calls for an electric motor having an output drive shaft extending there through, with the drive shaft having a proximal end on one side of the motor, a distal end on the other side of the motor and with the distal end of the drive shaft connected with the proximal end of the rotation shaft. Such a structure is not shown in *Nagai*. In *Nagai*, the output shaft of the motor 44 extends from only one side of the motor, namely, the side that connects with the ball screw 16.

Still further, the subject matter of original dependent 4 has been incorporated into claim 1. This requires claim 1 to also include a rotary positioning encoder mounted to the proximal end of the output drive shaft. Thus, in the structure as claimed in claim 1, the motor includes a drive shaft extending therethrough with the distal end located on one side of the motor and connected with the rotation shaft and the proximal end located on the other side of the motor and connected with the rotary positioning encoder. This is a unique structure and clearly different from that shown in *Nagai* in which the motor or power unit 18 is located at one end of the actuator and the encoder device 20 is located at the opposite end.

For all of the above reasons, it is submitted that claim 1 as amended is now allowable and such action is respectfully requested.

The dependent claims which depend from claim 1 and which have not been cancelled are also considered patentable for the same reasons as discussed above with respect to claim 1.

Independent claim 22 has been rejected under § 103 as being unpatentable over *Nagai* in view of the Walton Patent No. 4,438,662 and the Troutner Patent No. 4,643,710. The details of *Nagai* are discussed above. *Walton* discloses a control system which may be used in various industrial processes. The Examiner has taken the position that *Walton* and *Nagai* are from the same field of endeavor. Applicants respectfully disagree. While *Nagai* is located in the electric actuator field of the type for converting rotary motion to linear motion, the field of *Walton* is directed to automatic control systems. These are not analogous fields of art. A person seeking to improve or modify an electric actuator of the type shown in *Nagai* would not look to the field of automatic control systems. Thus, it would not have been obvious to a person skilled in the electric actuator art to have combined the teachings of *Nagai* and *Walton*.

Even if it is assumed that *Nagai* and *Walton* are analogous fields of art, claim 22 as currently amended is distinguishable from the combination of these references. Specifically, claim 22 as currently amended requires a rotation shaft with a drive shaft portion extending toward the proximal end of the housing and a lead screw end having a free end extending toward the distal end of the housing. As described above, the ball screw 16 in *Nagai* does not have a free end at all. Instead, opposite ends of the ball screw 16 are connected to and supported by the power unit 18 and the encoder device 20, respectively.

Further, claim 22 as amended calls for an extendable and retractable thrust assembly which surrounds the lead screw portion and which has a proximal end located within the housing and a distal end extending outwardly from the distal end of the housing. Again, this is clearly distinguishable from the primary *Nagai* reference in which the thrust member is entirely captured between the ends of the housing. Thus, there is no distal end which extends outwardly from the distal end of the housing.

Further, claim 22 has been amended to require the rotation shaft and the override rotation member to be axially fixed relative to the housing. In other words, although the rotation shaft and the override member rotate together relative to the housing, they do not move axially relative to the housing. In contrast, the override member in *Walton* comprises the threaded shaft and the knob 23 which, when rotated, moves axially relative to the instrument panel 14 and the housing 15.

Accordingly, independent claim 22 as amended is in condition for allowance and such action is respectfully requested.

Dependent claims 23, 24 and 25 depend from claim 22 and are considered allowable for the same reasons as discussed above with respect to claim 22.

Claim 33 has been amended by incorporating the limitations of initial dependent claim 33 requiring first and second axially spaced bearing members positioned between portions of the thrust member and corresponding portions of the housing. This is similar to the limitation in allowable claim 15 which requires first and second bearings between the coupling nut and thrust member and corresponding first and second housing portions. Such a structure is not shown in the applied references of *Cecil* or *Nagai* or any of the other references. Accordingly, independent claim 33 and dependent claim 34 are allowable.

New independent claim 36 is similar to allowable claim 15 and includes the requirement of both a first bearing between the coupling nut and a first portion of the housing and a second

bearing between the thrust member and a second portion of the housing. New independent claim 37 is similar to allowable claim 29 and includes the requirement of an impact relief assembly comprising a bumper of compressible material and a bearing means positioned between the rotation shaft and the thrust assembly.

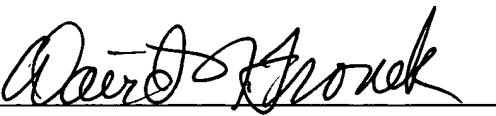
For all of the above reasons, and in particular, the discussion of the references cited and relied upon by the Examiner, the amendments to the claims and the distinctions between those claims and the applied references, it is believed that all of the claims in the application are now in condition for allowance and such action is respectfully requested.

In the event the Examiner has any questions or believes that a telephone call would expedite the prosecution of this application, he is respectfully requested to telephone the undersigned.

Respectfully submitted,

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